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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: ASAI , et al.

Serial No.: 10/528,372

Filed: 3/18/2005

Title: Method and Apparatus for Producing Metal Powder

Art Unit: 1742

Examiner: Wyszomierski, G.

Conf. No.: 4774

AMENDMENT AFTER FINAL REJECTION

Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

July 10, 2008

Sir:

This is in response to the Office Action mailed April 11, 2008, in connection with the above-identified application. The amendments are listed below and set forth on the following pages.

Amendments to the Claims; and

Remarks are included following the amendments.

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Canceled).

2. (Currently Amended) The method for production of metallic powder, the method comprising:

reducing metal chloride continuously by a reducing process by contacting the metal chloride gas and reducing gas, and

cooling metallic powder generated by the reducing process by inert gas continuously, wherein the inert gas is blown from one or more parts around a flow passage of the metallic powder to generate a vortex flow in the vertically downward direction.

3. (Currently Amended) The method for production of metallic powder according to claim-~~4~~2, wherein the parts from which inert gas is blown are not less than four at equal intervals.

4. (Currently Amended) The method for production of metallic powder according to claim-~~4~~2, wherein the blowing direction of inert gas is inclined at 5 to 25 degrees from the horizontal direction.

5. (Currently Amended) The method for production of metallic powder according to claim-42, wherein the supplied amount of the inert gas is 5 NI/min per 1 g of the metallic powder.

6. (Currently Amended) The method for production of metallic powder according to claim-42, wherein the temperature of the inert gas is set at from 0 to 100°C.

7. (Currently Amended) The method for production of metallic powder according to claim-42, wherein the metal chloride gas is generated by contacting chlorine gas continuously with solid metal, or by heating and evaporating solid metal chloride.

8. (Currently Amended) The method for production of metallic powder, the method comprising:

reducing metal chloride continuously by a reducing process by contacting the metal chloride gas and reducing gas,

conducting a first cooling process comprising cooling metallic powder generated by the reducing process by inert gas continuously, wherein the inert gas is blown from one or more parts around a first portion of a flow passage of the metallic powder to generate a vortex flow, and

conducting a secondary cooling process comprising further cooling the metallic powder cooled by the first cooling process by inert gas continuously, wherein the inert gas is blown from one or more parts around a second portion of a

flow passage of the metallic powder downstream of the first portion to generate a vortex flow.

9. (Currently Amended) The method for production for metallic powder, the method comprising:

reducing metal chloride continuously by a reducing process by contacting the metal chloride gas and reducing gas in a reducing furnace, and

cooling metallic powder generated by the reducing process by inert gas continuously, wherein the inert gas is blown from one or more parts around a flow passage of the metallic powder to generate a vortex flow and wherein inert gas flow is generated in a downward direction along the inner wall of the reducing furnace continuously during the production of the metallic powder.

10-17. (Canceled).

18. (Currently Amended) The method for production of metallic powder, the method comprising:

reducing metal chloride continuously by a reducing process by contacting the metal chloride gas and reducing gas,

conducting a first cooling process comprising cooling metallic powder generated by the reducing process by inert gas continuously, wherein the inert gas is blown from one or more parts around a flow passage of the metallic powder to generate a vortex flow, and

conducting a secondary cooling process comprising further cooling the metallic powder cooled by the first cooling process by inert gas continuously,

wherein the inert gas is blown from one or more parts around a flow passage of the metallic powder to generate a vortex flow in the vertically downward direction.

19. (Previously Presented) The method for production of metallic powder according to claim 8, wherein, in the secondary cooling process, the parts from which inert gas is blown are not less than four at equal intervals.

20. (Previously Presented) The method for production of metallic powder according to claim 8, wherein, in the secondary cooling process, the blowing direction of inert gas is inclined at 5 to 25 degrees from the horizontal direction.

21. (Previously Presented) The method for production of metallic powder according to claim 8, wherein, in the secondary cooling process, the supplied amount of the inert gas is 5 NI/min per 1 g of the metallic powder.

22. (Previously Presented) The method for production of metallic powder according to claim 8, wherein, in the secondary cooling process, the temperature of the inert gas is set at from 0 to 100°C.

23. (Currently Amended) The method for production of metallic powder according to claim ~~4~~2, wherein each blowing direction of the inert gas from the one or more parts is inclined from a normal line of a circumference surface of the ~~cooling process part~~ flow passage of the metallic powder to some extent in the horizontal direction and is also inclined from the normal line to some extent in the vertical direction.

24. (Currently Amended) The method for production of metallic powder according to claim-4 2, wherein each blowing direction of the inert gas from the one or more parts is inclined from a normal line of a circumference surface of the ~~cooling process part~~ flow passage of the metallic powder to some extent in the horizontal direction and is not inclined from the normal line in the vertical direction.

25. (Currently Amended) The method for production of metallic powder according to claim-4 2, wherein reducing the metal chloride continuously and cooling the metallic powder generated by the reducing process are both performed in a single reduction furnace.

26. (Currently Amended) The method for production of metallic powder according to claim-4 2, wherein the vortex flow is generated ~~almost~~-uniformly at any position within a cooling process part of the flow passage.

27. (Previously Presented) The method for production of metallic powder according to claim 26, wherein the inert gas is blown from a plurality of parts around the flow passage.

28. (Previously Presented) The method for production of metallic powder according to claim 27, wherein the plurality of parts are arranged at equal intervals around the flow passage.

29. (Currently Amended) The method for production of metallic powder according to claim 28, wherein each blowing direction of the inert gas from the plurality of parts is inclined from a normal line of a circumference surface of the ~~cooling process part~~ flow passage of the metallic powder to some extent in the horizontal direction and is not inclined from the normal line in the vertical direction.

30. (Previously Presented) The method for production of metallic powder according to claim 8, wherein reducing the metal chloride continuously, the first cooling process and the secondary cooling process are all performed in a single reduction furnace.

REMARKS

By this amendment, Applicants have canceled claim 1 and amended claims 3-7 and 23-26 to depend from claim 2. Claims 2, 8, 9, 18, 23, 24 and 29 have been amended to eliminate antecedent basis problems, including those noted by the Examiner in numbered section 2 of the Office Action. Claim 26 has been amended to delete the word "almost."

In view of the foregoing amendments to the claims, all of the claims now in the application comply with the requirements of 35 U.S.C. 112, second paragraph. Therefore, reconsideration and withdrawal of the rejection of claims 23, 24 and 26 under 35 U.S.C. 112, second paragraph, are requested.

In view of the cancellation of claim 1 and since claims 3-7 and 23-29 now ultimately depend from claim 2, the rejections of claims 1, 3-7 and 23-29 in numbered section 4 of the Office Action is moot.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 1150.44902X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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